

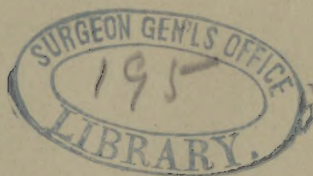
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TREATMENT OF STRICTURES OF THE URETHRA
BY
LAMINARIA DIGITATA AND GALVANISM.

BY ROBERT NEWMAN, M.D.,

NEW YORK.

A PAPER READ BEFORE THE MEDICAL JOURNAL ASSOCIATION OF NEW YORK.



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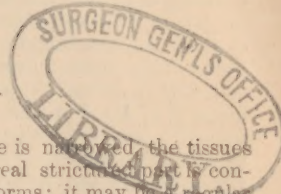
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It is not my intention to speak of the treatment of strictures in general. Elaborate works on that subject are written by many authorities. Medical literature abounds with treatises on this subject. This Society has recently listened to valuable papers on Strictures. Neither is it my purpose to recommend one particular treatment as the best; and to condemn all other. The true physician has no direct panacea for certain diseases. On the contrary, he always feels the necessity for close and accurate observation upon the phenomena developed by particular cases, and adapts his treatment to the peculiar needs of each patient. In this way each case of stricture requires examination, and the application of its appropriate means of cure.

There are different kinds of stricture, such as the spasmodic, the inflammatory, the traumatic, the granular, the fibrous, the cicatricial, the calcareous, etc. It would be absurd to suppose all of these varieties could be treated alike; although in all cases, our treatment has but one common aim, *i.e.*, to restore the urethra to its normal state, calibre, and power of healthful action. There are many instruments ingeniously devised to secure this end, and each may find proper employment in the peculiarities of the disease, as it develops itself in different cases. But the best way to accomplish the end must be left to the judgment of the surgeon, and I cannot too strongly insist upon the necessity of the most careful examination and perfect understanding of the difficulty before any plan of the treatment is instituted. Neglect of this first most important step has frequently resulted in very serious complications, injurious to the patient. When this has been accomplished, the surgeon may safely pursue any of the established methods, or which is better, depend upon his own judgment and experience in making choice of the fitting remedies to effect a cure.

The knowledge through examination is gained by: 1st. Digital touch, committed to the fingers by transmission of the exploring instrument. 2d. By exact measurement to ascertain the exact locality, length, and size of the strictures, and 3d. By ocular inspection through the endoscope. The latter will give valuable information, and is alone capable of revealing the true condition of the parts, which decides the character of the stricture. When the tube of the endoscope is withdrawn from a urethra, which is sensibly indurated, and especially if there be a slight stricture, the canal closes behind the end of the instrument with a certain abruptness; a circumstance, which is in striking contrast with the gradual way in which the healthy urethra closes, when similarly manipulated. If the tube of the endoscope is arrested by an organic stricture, the ocular inspection will show the exact form. Of

course we see that the calibre is narrowed, the tissues altered and indurated. The real stricture is contracted in various ways and forms: it may be a regular ring, but more frequently we see irregular slits in different directions, oval, round, square, triangular, serrated, and other irregular shapes. Such strictures are not necessarily in the middle, but frequently are seen on one side of the focus. If the stricture is so slight, that a smaller tube will pass it, then it is necessary to examine the lower parts of the urethra, in order to ascertain if other strictures are present. In withdrawing the tube, the peculiar abruptness of the stricture upon the instrument can be seen and felt by the guiding hand. Often another condition will be found. The tube is arrested, at the same time the patient complains of soreness, even of pain. Then the inspection shows that the calibre of the urethra is narrowed by granulations, which in the centre of the focus are elevated, hanging in small red rotulas, with a peculiar shining lustre, giving it a strawberry appearance. Below these granulations and underneath, the longitudinal fibres radiate towards the periphery from little centres, resembling a contracted pupil. These fibres are less regular and distinct than in health, and sometimes are even interrupted and indistinct. The cure of the granulations by local applications is the only rational one, and thereby the stricture will also disappear. In former times we were taught, that the introduction of the steel sound by its weight presses the granulations until they are cured. But such treatment was notoriously unsuccessful, and the fallacy of such theory is now easily understood. Dr. Otis in his valuable paper says: "We may, then, affirm as a most important axiom, that the slightest abnormal encroachment upon the calibre of the urethral canal, at any point in its course, is sufficient to perpetuate a urethral discharge, or even, under favoring circumstances, to establish it *de novo*, without venereal contact." I endorse this most heartily as an important fact, and may add, that the discharge will disappear as soon as the calibre of the urethra is restored to its normal size. This is very important in the treatment of gleet discharges and strictures. Injections continued for years will not cure a gleet, so long as the stricture or the granulations remain.

In speaking of gleet and stricture, the cause and consequence may be easily confounded. As a rule, the first step is an old, uncured, and neglected gonorrhoea. A stricture is the consequence, which again is followed by gleet: the usual one or two drops every morning accumulating and emerging from behind the stricture.

In considering the treatment of the *Organic Stricture*, the majority of surgeons prefer dilatation. This can be done by gradual dilatation, or by rupture. The dilators

and divulsors of Voilemier, Thompson, Holt, Otis, Reybard, Civiale, etc., etc., have their advocates, and may be used in appropriate cases. But according to authorities, in most cases a gradual dilatation will be preferred.

Speaking of such strictures, in which the best method of treatment is gradual dilatation, it must certainly be an improvement, if such gradual dilatation can be done with rapidity, as well as safety. And this is effected by the use of laminaria and galvanism, which we will consider to-night.

Laminaria digitata, sea-tangle, seaweed, is a sea-plant growing near the coast, beneath the water. It is found in Ireland, Scotland, California, etc. For the treatment of stricture these bougies, which I show you here, are used. They come in six different sizes; No. 6 corresponding to a small No. 5 of Tiemann's gauge, and No. 1 filling $\frac{1}{4}$ of No. 1 of the same gauge. In relating to numbers hereafter, the comparison is made according to Tiemann's gauge. The following experiments will show the dilating power these bougies possess. A laminaria bougie, No. 3, was submerged in water, and was found to dilate as follows:

In 1 hour 5 minutes to No. 6.

" 2 hours " " 7.

" 4 " 15 " " 10.

Other experiments, all made in May, 1867, had similar results. I present here another specimen, which I have submerged in water to-day at 12 o'clock. It has remained there seven hours; it is a No. 6, and is now dilated to No. 16. Dry air will contract it again to its former size. The grade of expansion depends on the moisture surrounding the laminaria. This law must be taken into consideration, and certain precautions used. Some parts of the urethra, which have more secretions or more moisture, will dilate such portions of the bougie to a greater degree, and that part within the bladder, surrounded by urine, will expand to such an extent, that it is impossible to withdraw the bougie through the parts of the urethra, not so much dilated. Such an accident may be detrimental or even dangerous to the patient. The failure or success of the operation will depend much on the attention and care of the surgeon. If the ordinary precautions are used, success must follow. The following rules must be observed to insure success:—

1. The bougies must be made from an unblemished piece of the plant, taken out of the middle, made with care and equal in its whole length and size. If there is the slightest suspicion of unevenness it should not be used.

2. That part of the bougie which will occupy the portion of the urethra below the last stricture, and particularly that part of the bougie which enters the bladder, must be varnished previously. Mastich varnish can be used. If the varnish is applied just before using, the laminaria may dilate a little, but if several coats are applied and allowed to dry, no expansion can take place.

3. As any oily substance hinders the expansion, no oil must be used. The bougie before introduction must be placed in cold water, until it gets a soft, velvet-like touch.

4. The bladder must be emptied before the operation, to avoid uneasiness and overdistention.

5. The urethra ought to be injected with water, to relax the parts and favor the moisture for rapid dilatation.

6. The measure of the urethra and seat of strictures must be carefully taken, notes made, and the bougie prepared accordingly.

7. The bougie, when ready, must be introduced at

once, straight, without hesitation, twisting, or reating in its passage; otherwise it will cause pain, or, as dilatation goes on immediately, it will not reach the desired depth.

8. After insertion, the bougie must be left alone, and not meddled with, or tried to move.

9. It must be left inside undisturbed for two to four hours, according to circumstances, consulting the feeling of the patient.

10. The patient during this time is left in a recumbent position, and attended or observed by the surgeon.

11. In removing the bougie, the surgeon takes hold of the bougie, and uses firmly and gradually tractions in the same direction.

If some surgeons have failed with laminaria, they either have not observed these precautions, or they have had imperfect bougies, or selected impracticable cases.

This treatment is most indicated when the stricture is very small, almost impermeable, and no time can be lost, as the No. 1 bougie of laminaria can be introduced easier than the usual sounds or catheters. In a few hours the patient is relieved, and can micturate without difficulty. No bad results can follow, nor will it interfere with his attention to business. This latter advantage is a great consideration, as the treatment with divulsors or dilators almost always causes pain, sufferings and detention in bed and from business. As soon as the stricture is dilated so far that a steel sound of a larger calibre can be introduced, the laminaria has done its duty, and it is better to abandon its further use, and continue with other means. These are either steel sounds or galvanism.

Electricity in the treatment of strictures is by no means new, and has been reported as far back as 25 years, or perhaps earlier; but the use of *galvanism* for such purposes is only of recent date, and worked methodically by Mallex and Tripiet. Much confusion of terms and ideas arise from want of definite information upon the subject of electricity, and the vague and undefined results afforded by partial experiment and analysis of this imponderable agent in therapeutics. It is not surprising that many false statistical reports, and the confounding of scientific terms go on record; thus the first "blistering galvanic battery" was patented in the United States about 19 years ago. Now galvanic batteries, such as we use at present, are only about 12 years old, and many improvements since that period have been made. So when we read of the use of galvanism of a prior date, we may be certain that it is an incorrect statement. I will here mention only one such instance reported in the *Medical Record*, December 1st, 1868. The gentleman tells us that he has cured a stricture in 1844 with the "Pike's galvanic battery," which he carried with him in his carriage. A little reflection will show that a galvanic battery could not be taken in a carriage over country roads on the daily visits of a physician. What becomes of the acids in the open cells? Next, I know that Pike never made galvanic batteries. By accident, I came across the same kind of battery, at the house of a friend, used in the case represented above, which fully explains the mistake in the report. The inscription proved that it was an electro-magnetic machine, made by Benjamin Pike, jr., 294 Broadway, introduced November, 1843. Therefore the gentleman had not used galvanism, but only the Faradic current.

From authorities on this subject, it seems that Mallex and Tripiet deserve the credit for having revived, if not originated, the treatment of strictures by galvanism methodically, with improved instruments and appliances.

The success in curing a stricture by the galvanic

battery depends mainly upon the chemical effect of absorption of the altered tissues forming the stricture. Alkalies go to the negative; acids to the positive pole. Consequently we use the negative pole to produce the effect of absorption, which will act as a caustic alkali and not produce any cicatrix.

To regulate the strength of the battery to the strength of the patient is an important point in electro-therapeutics. In all drugs we have an established dose, which we again regulate according to circumstances and the individuality of the patient. Should electricity be given at random? The regular dose in the shape of the strength of the current ought to be ascertained, otherwise the intended remedial effect may be detrimental. Now the question arises, what instrument will best fulfil our purpose? In most of my experiments I have used a Stoehrer's sixteen-cell galvanic battery; but in the use of this very convenient apparatus I have met with some difficulties, which it was impossible to overcome without very complicated auxiliary instruments. This battery permits grades only by two (2) cells, which, increasing or diminishing, is too great a difference, and the intensity of the galvanic current, thus altered, is too sudden, causing in the patient a nervous irritation, shock, and pain.

The size of the elements in Stoehrer's battery is far too large, and the quantity of electricity thereby generated is too powerful to produce the proper effect; consequently the destruction of tissue is too great. This, again, will cause pain, which patients refuse to endure.

A large surface of battery will cauterize with more intensity than any other known caustic. By using the necessary amount of electrical current thus generated, to enlarge the sphere of action, too much inflammation of the surrounding healthy tissues may supervene, and thus aggravate the disease. No action should ever destroy healthy tissues, the only effort to be made is to restore the morbid parts to their proper normal condition of health; therefore the concentration of the electrical current should be strictly confined to the diseased locality only.

To this peculiarity of the Stoehrer battery some failures are due, and I greet with great satisfaction, and exhibit here the new galvanic battery invented and manufactured by Luis Drescher & Co.

It is a very handsome, portable instrument, which combines elegance with cheapness. It contains 20 cells, and is sold at the same price as Stoehrer's 16-cells. The great objection to large surfaces is here overcome, and in the trials made I found decided advantages in the two following points:—

I. The intensity of the current can be augmented gradually cell by cell, without any interruption of the current, and the patient will hardly perceive the increase of intensity which can be used above the power of Stoehrer's battery.

II. The quantity of electricity is reduced to a point sufficient to produce the most intense action on a very limited space.

In treating a stricture, I always first ascertain the susceptibility of the patient to the galvanic current. Then to the negative pole is attached a metallic conductor into the urethra down to the stricture. These instruments are made from flexible catheters, the end of which is a lead or nickel bulb, about a half an inch long, connected with the battery by a wire running through the middle of the catheter. The catheter itself acts as an insulator and protector to the other parts of the urethra.

I here exhibit a full set of the catheter-electrodes, a complete assortment of all sizes made also by Luis

Drescher & Co. The insulation is perfect, and the egg-shaped form proportionately in length to its diameter. As soon as the catheter or the negative pole is connected with the battery, the circuit is completed by the positive sponge electrode, either placed over the suprapubic region or grasped with the palm of the patient's hand. Then the current is very gradually increased from one cell upwards, till the patient feels a slight pricking, and can tolerate it without pain.

The galvanic stream must never be so strong as to cause pain or burning, otherwise it acts as a galvanocautery, destroys healthy tissues, forms cicatrices, new strictures, complicates matters, and the difficulty is increased. In ending the operation the battery must be gradually decreased to cell one (1), and then the current interrupted by removing the electrodes. Failures may be due also to too prolonged or too frequent applications. Repetition of the application must be made at intervals of at least two weeks, or sometimes longer.

The foregoing will be illustrated by some cases, which are clinical facts.

CASE I.—*Stricture cured by Laminaria Bougies*, May 13th, 1867.—A. L. C. of Brooklyn, came to my office with the following history: He had contracted a gonorrhœa 2½ years ago; discharged for some time, which was followed by a gleet, and in due time a stricture was formed; was treated by an eminent surgeon with apparent success, but he soon neglected the stricture. Had another gonorrhœa three months ago; the stricture grew worse and troubled him much; sometimes spasmodic. On examination there were found three distinct strictures. Only a sound No. 8 could be used for the introduction which reached stricture No. 1. The other two strictures were found with a sound No. 4. In the afternoon a catheter No. 3 was introduced, and the water drawn off; then a wax bougie No. 4 passed nicely.

Contractions of the bladder were painful and were controlled by morphine.

May 14th. Laminaria bougie No. 2, varnished 1½ inch at the end, was introduced four o'clock in the afternoon, six inches above the varnished part. Hence the bougie was introduced 7½ inches. The bougie was removed at 6 o'clock, having been inside fully 2 hours. Then it was found dilated to No. 5. Went home, feeling better without any pain or inconvenience.

May 15th. Passes urine freely and since yesterday has felt well.

May 17th. Laminaria bougie No. 4 was left nearly three hours. When removed was dilated to No. 8.

May 19th. Laminaria bougie No. 5 was left three hours, on removal was not equally dilated. The strictures were well marked by constriction at the bougie, varying from 6 to 9.

R Hydrarg. bichloridi.....gr. j.
Extr. belladonnæ.....g. vj.
Glycerine.....3j. M.

To apply on conical bougie No. 6.

May 21st. Felt well and in good spirits. After this the strictures were dilated gradually with steel sound to No. 12.

Here we have stricture made tolerably easy within 2 hours, and dilated to its normal size in 7 days.

CASE II.—*Aggravated Stricture in Prostatic Portion*.—*Laminaria bougie—permanent cure*.—Mr. J. R., Hotel keeper, came in great agony, suffering from a stricture which was so small that it prevented him from passing water. The urine dribbled away drop by drop. He had endured the stricture for several years; had treatment off and on.

October 14th, 1867. On examination found stricture in the prostatic portion. A steel sound No. 11 entered

the meatus and passed on for 6½ inches, where it was arrested by the stricture. Various instruments were tried, none were small enough to pass the stricture. At last Minor's instrument was pushed up to the stricture, and the enclosed cat-gut passed with great difficulty into the stricture, but not beyond.

Oct. 18th. Dr. Finnell was kind enough to assist me. All the usual instruments for the passage of the stricture were tried in vain; even the smallest Laminaria bougie No. 1 would not enter. After many trials a No. 1 zinc sound entered.

Oct. 21st. Zinc sound Nos. 1 and 2.

Oct. 23d. Zinc sound No. 2. The No. 3 would not pass. The Laminaria bougie, No. 1, went easily into the bladder. It was left there for two hours. On its removal it was found dilated fully to No. 4.

Nov. 2d. After an absence of nine days, the patient returned and reported easy. Is very much improved and relieved by passing water freely. Catheter No. 3 was introduced with a little difficulty. Laminaria bougie, No. 2, was left for three hours. On removal was dilated fully to No. 5. Immediately after he passed water easily.

Nov. 11th. Patient after each visit left for home, which is 44 miles distant from New York. He made the journey without experiencing any difficulty. Catheter No. 5 passed readily. Sound No. 6, with some difficulty, was left inside for eleven minutes.

Nov. 14th. Sound No. 6 passed easily. Same manner laminaria bougie, No. 3. Left for three hours, when it was dilated fully to No. 8. This figure represents the urethra at this stage, drawn from the appearance of the laminaria after removal. At *a* will be seen a little constriction, which shows a small stricture; at *b* begins the large stricture, fully six and a half inches from the meatus. The duct. ejaculat. are at *c*, seven and a half inches from meatus.

The penis of this patient is small, the whole urethra measuring only seven and a half inches. As the stricture is six and a half inches from the meatus, and one inch from the duct. ejaculat., it follows that said stricture is in the prostatic portion. This is a noticeable fact, as Sir H. Thompson denies the existence of strictures in said locality. The last laminaria bougie was introduced eight and one-fourth inches, therefore three-fourths inches within the bladder. The lower portion was, of course, properly varnished.

Nov. 19th. Some soreness about the stricture; could not introduce sound No. 7.

Nov. 26th. Sounds 7 and 8.

During December, in four visits, dilatation was continued with steel sounds.

Jan., 1868. Treatment continued. In four visits sound No. 11 passed easily.

Feb., 1868. Sound No. 12 easily.

March, 1868. He passes sound No. 11 himself. The urethra appears normal, and he was therefore considered cured.

August 25th, 1871. Just 3½ years afterwards the same patient appears again with an acute urethritis, contracted 2 weeks ago. For several years he has not passed any sound. On exploring with a large steel sound No. 10, find to my surprise that it slips into the bladder with great ease, and that no trace of the former stricture is left.

The urethritis was cured in a few weeks. Have seen the patient only recently, explored the urethra again, and found him perfectly healthy.

This case is an important clinical fact. It proves beyond any doubt, that strictures can be cured, and also the efficacy of the laminaria bougies, etc. Objections may be made to my mode of illustrating this fact, for

it is said, strictures within the prostatic portion are not believed to occur unless it is proven by a post-mortem. To either I have to say that if such a stricture is cured, the post-mortem demonstration of the fact cannot be made, and if a post-mortem examination shows a stricture within the prostatic portion it could not have been cured.

Still another case of stricture within the prostatic portion of the urethra has come under my observation recently. The stricture was seven inches from orifice, sound 12 passed easily, until seat of stricture. A steel sound No. 7 could only be pushed through stricture with difficulty. Galvanic Battery applied, and the bougie No. 10 with bulb of lead passed gradually into the bladder after five minutes' galvanic current. After this a steel sound passed easily. The case is of too recent observation, and therefore cannot place it on file as a decided success.

[May 30th. The patient has been kept under treatment, and the stricture cured. To-day sound No. 13 passed easily into the bladder.—R. N.]

Dr. G. C. Terry presented a specimen of stricture of the urethra in the prostatic portion to the Pathological Society in 1867, which is another proof that stricture can appear in the prostatic portion; in this case it was demonstrated by a post-mortem inspection.

CASE III.—Stricture cured by Laminaria and Galvanic Battery.—F. S., after a urethritis had for the last eight months a slight discharge of a gray and greenish color. The discharge is very small in quantity, but constant.

March 7th, 1871. On examination with a glass tube and mirror found a stricture 1½ inches from meatus. Bougie No. 3 passed the stricture.

March 8th. Laminaria bougie No. 4 was passed with difficulty, the size being almost too large to pass the stricture.

During the time of pushing it along, the Laminaria began to dilate, in consequence of which it could not be pushed further than 3½ inches from meatus. Was left there for 3½ hours.

The dilatation from meatus *a* to stricture *b* was round, and equally expanded to No. 7, the stricture itself was well marked, constricted and dilated only to No. 6. The other side beyond stricture, the bougie was flattened, and dilated to No. 8. He left my office immediately afterward, very comfortable and without pain.

March 20th. Sound No. 7 passed stricture easily. Sanies discharge of serum and a little blood, but had no pain.

March 21st. Bougie No. 8 would not pass the stricture. Galvanic battery applied. Positive pole covered with sponge in hand. A bougie with a lead bulb at the end attached to the negative pole was introduced into the urethra and arrested at the stricture.

A constant stream was then applied with 10 cells for 2½ minutes, when the bougie passed freely through the stricture, and was arrested by a second stricture at 5½ inches.

April 3d. Bougie No. 9 passed tightly. Galvanic battery bougie passed through both strictures, 10 cells for 5 minutes. The bougie passed the first stricture after 2½ minutes, the second 5½ inches after 4 minutes.

April 10th. Urethra still sore but no indurations felt. Sound No. 10 passed easily.

April 18th. Examination with glass tube and mirror cannot discover any granulations or sores. Sound No. 11 enters.

April 27th. Sound 11 and 12 passes.

May 8th. Examination with endoscope reveals only healthy tissue. Dismissed as cured.

Jan., 1872, was again seen and found in good health.

CASE IV.—*Stricture cured by Galvanic Battery.*—H. W. B., Merchant, married. Had a gonorrhœa two years ago. Urethra discharged for several months, after which he had gleet discharges off and on. Has now some sanies discharge, and sometimes a burning sensation on micturition.

Sept. 14th, 1871. Endoscopic examination.

Small tube met with some constrictions in the urethra, and was arrested at 5 inches.

On inspection the urethra was found a little thickened and red. The stricture could distinctly be seen as an irregular slit diagonally from right to left. Very slight points of granulation springing up almost below the stricture.

Sept. 25th. Sound No. 9 passed with difficulty, and was arrested at 5 inches. Galvanic battery 10 cells. From negative pole, the bougie No. 10, with a nickel point, was introduced into the urethra, constant stream for 2½ minutes, passed the stricture easily.

Oct. 24th. Galvanic battery as before—bougie No. 11, nickel end, after which sound No. 12 was introduced. Patient was ordered to use sound No. 11 once a week.

Jan. 18th, 1872. Saw the patient again, and found him well. Sound No. 12 passed.

CASE V.—*Stricture.*—*Cause of the failure of Galvanic Battery and Laminaria.*—A case is added in which the galvanic battery and laminaria did not cure the stricture, but on the contrary made it worse. The cause of the failure, however, was explained, and I relate it with the intention of showing how important it is to make a correct diagnosis. Injudicious selection of cases for the operation, and a false diagnosis, will necessarily be followed by failure.

B. A. came to my office last fall with an acute urethritis, which was cured by mild injection within about three weeks, after which a steel bougie No. 12 passed easily into the bladder.

Two months afterwards he appeared, and complained of the breaking out of a slight discharge; on examination found a stricture at 4½ inches. Galvanic battery was applied twice at intervals of two weeks. Each time the negative-metallic electrode Nos. 10 and 11 passed into the bladder. On each succeeding visit, however, the stricture was worse. The stricture was so small that an endoscopic examination was impossible. Light thrown by a mirror through a glass tube shows only healthy tissue, mucous lining had a natural color, orifice and walls normal, no discharge to be seen. Cause of stricture unaccountable. Laminaria bougie No. 5, varnished at the end for one inch, was introduced 7 inches from meatus at 2:40, p. m., left there for three hours, and after removal found to my surprise bougie dilated only to No. 7. A large quantity sanies discharge followed the bougie from the urethra, which was characteristic of chancre.

The patient was immediately put under constitutional treatment, and recovered in a few weeks. I conclude that the patient when first seen had only *Gonorrhœa*, which was cured. Afterwards the syphilis developed, and a chancre appeared within the urethra, causing the pseudo-stricture, which was not recognized at first. The case is instructive, and shows one of the reasons of failure, in the treatment of stricture with galvanism and laminaria.

These cases I believe will suffice to illustrate the efficacy of galvanism and laminaria in the cure of stricture. This method is not sufficiently understood and adopted. From my experience I discovered that the following rules ought to be observed in its application.

1. Before the operation, the susceptibility to electricity

of the patient should first be ascertained, and the strength of the battery arranged accordingly.

2. The current should never be made so strong as to cause pain, or prolonged too long, but proportioned to the strength of the patient.

3. The poles must be placed first, and then the current introduced. Shocks and interruption of current should be avoided.

4. Repetitions of the operation must be done at intervals of at least fourteen days, or better four weeks.

5. Mild currents, continued and repeated, work better than strong currents, which, if given only through the metal, cause pain, and may destroy tissues, without curing the strictures.

This electrolytic procedure must not be confounded with galvano-caustic, which is used for the amputation of tumors, etc., and the immediate destruction of abnormal growths.

I cannot finish this paper without alluding to the valuable article of Dr. E. L. Keys, a gentleman well fitted for the investigation of this intricate question. The doctor has worked with skill and perseverance, and detailed his experiments with a clear precision and evident honesty of purpose. He reports in the *N. Y. Med. Journal*, December, 1871, among others, ten cases of stricture treated by electrolysis. I perused this report with pleasure, as I believe it is the first, if not the only one given in America, respecting the use of galvanism in strictures.

The author may possibly be too sanguine in his expectation, or too easily discouraged in consequence of these large expectations tempting him to condemn the method altogether, forgetting that a class of charity patients are the poorest kind from whom we can predicate the result of experimental treatment. Most of these are broken down in constitution, and from poverty and other causes incapable of aiding the cares and wishes of the physician. We cannot but observe in this report some very important complications that would have great weight at the time of treatment in characterizing the nature of the result obtained. For example, Case 2 was suffering from secondary syphilis; Case 6 had swollen testicle; 7, the urethra feels outside like a fibrous cord, and in Case 9, internal urethrotomy had been performed. Certainly all the conditions were unfavorable for a good result. Notwithstanding all this, the *résumé* of the ten cases ought to give satisfaction:

One unsuccessful—Case 9.

Five patients refused further treatment, and disappeared—Cases 1, 4, 6, 7, 8.

Four successful—Cases 2, 3, 5, 10.

Total, 10.

The only really unsuccessful case, 9, may be due to the former internal urethrotomy. Next, it is unjust to condemn the method, because five patients have disappeared, and could "not be followed sufficiently long to make such an observation valuable." And last, we find an undoubted success in four cases. In Case 2, notwithstanding the complication of syphilis, the stricture was dilated in one sitting from 9 to No. 12. In Case 3, from a filiform bougie the progress was made to No. 8, and in Cases 5 and 10, after treatment, sound No. 15 passed. Certainly a good result, and no reason to complain.

Considering all circumstances, I must profess myself well satisfied with the result obtained by the use of galvanism in strictures, and hope the profession will give more attention to the subject, and that many interesting reports may be given us, which will enable us to add so confidently important a remedial agent to our *repertoire*.

NEW YORK, 145 West Forty-Seventh Street.]

